AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of processing seismic data, comprising:

acquiring the seismic data using a seismic source array comprising at least two seismic sources, at least one seismic source being deployed directly above at least one other seismic source, the seismic source being configured to provide at least two seismic signals having frequency spectra within the seismic bandwidth that contain a source ghost at a non-zero frequency, said at least two seismic signals combining to form a seismic wavefield having a frequency spectrum within the seismic bandwidth that does not contain a source ghost at a non-zero frequency;

acquiring the seismic data using at least two receivers, at least one receiver being deployed directly above at least one other receiver, and

processing the acquired seismic data thereby to attenuate the effect of ghost reflections in the seismic data.

2. (Previously Presented) A method as claimed in claim 1, comprising providing a seismic wavefield having a frequency spectrum that does not contain a source ghost at a non-zero frequency in the frequency range up to 500Hz, for a take-off angle of up to 45°.

3. (Original) A method as claimed in claim 1 and comprising processing the acquired seismic data to attenuate the effects of receiver-side ghost reflections.

4. (Original) A method as claimed in claim 1 wherein the processing step comprises separating the acquired seismic data into an up-going constituent and a down-going constituent.

5. (Currently Amended) A method of acquiring seismic data comprising the steps of:

a) providing at least two seismic signals having frequency spectra within the seismic bandwidth that contain a source ghost at a non-zero frequency, said at least two seismic signals combining to form seismic energy having a frequency spectrum that does not contain a source ghost notch at a non-zero frequency within the seismic bandwidth, said at least two signals being provided by at least two seismic sources, at least one seismic source being deployed directly above at least one other seismic source;

b) acquiring seismic data in response to providing said at least two signals using at least two receivers, at least one receiver being deployed directly above at least one other receiver; and

c) processing the acquired seismic data thereby to attenuate the effect of ghost reflections.

6. (Canceled)

7. (Previously Presented) A method as claimed in claim 5 wherein providing said at least two seismic signals comprises providing said at least two seismic signals from at least two different locations.

8. (Canceled)

9. (Previously Presented) A method as claimed in claim 7 wherein providing said at least two seismic signals comprises providing said at least two seismic signals from a first location and a second location.

10. (Canceled)

11. (Previously Presented) A method as claimed in claim 9 wherein providing said at least two seismic signals comprises providing at least one first seismic signal a pre-determined time after providing at least one second seismic signal.

12. (Canceled)

13. (Previously Presented) A method as claimed in claim 11 wherein the pre-determined time is substantially equal to the travel time of seismic energy from the first location to the second location.

14. (Previously Presented) A method as claimed in claim 5 wherein providing said at least two seismic signals comprises providing at least one seismic signal from a location substantially at the surface of a water column.

15. (Canceled)

16. (Original) A method as claimed in claim 5 wherein the source array comprises means for absorbing upwardly-emitted seismic energy.

17. (Canceled)

18. (Original) A method as claimed in claim 5 wherein the source array comprises means for inducing positive reflection of upwardly-emitted seismic energy.

19. (Canceled)

20. (Currently Amended) An apparatus for processing seismic data acquired using a seismic source array comprising at least two seismic sources, at least one seismic source being deployed directly above at least one other seismic source, the seismic source being configured to provide at least two seismic signals having frequency spectra within the seismic bandwidth that contain a source ghost at a non-zero frequency, said at least two seismic signals combining to form a seismic wavefield having a frequency spectrum that does not contain a notch at a non-zero frequency, the apparatus comprising at least two receivers, at least one receiver being deployed directly above at least one other receiver and a controller for receiving the acquired seismic data and [[means]] for processing acquired seismic data thereby to attenuate the effect of ghost reflections in the seismic data, the controller being coupled to the seismic source array and said at least two receivers.

21. (Original) An apparatus as claimed in claim 20 and adapted to process acquired seismic data to attenuate the effects of receiver-side ghost reflections.

22. (Original) An apparatus as claimed in claim 20 and adapted to separate acquired seismic data into an, up-going constituent and a down-going constituent.

23. (Original) An apparatus as claimed in claim 20 and comprising a programmable data processor.

24. (Currently Amended) A seismic surveying arrangement comprising:

a) a seismic source array comprising at least two seismic sources, at least one seismic source being deployed directly above at least one other seismic source, the seismic source being configured to provide at least two seismic signals having frequency spectra within the seismic bandwidth that contain a source ghost at a non-zero frequency, said at least two seismic signals combining to form a seismic wavefield having a frequency spectrum that does not contain a notch at a non-zero frequency;

b) ~~one or more~~ at least two seismic receivers for acquiring seismic data, at least one seismic receiver being deployed directly above at least one other seismic receiver; and

c) an apparatus for processing seismic data acquired at the one or more receivers.

25. (Original) A seismic surveying arrangement as claimed in claim 24 wherein the source array comprises a first seismic source and a second seismic source disposed, in use, below the first seismic source.

26. (Original) A seismic surveying arrangement as claimed in claim 25 wherein the second seismic source is disposed, in use, vertically below the first seismic source.

27. (Original) A seismic surveying arrangement as claimed in claim 25 and further comprising means for actuating the second source a pre-determined time after actuating the first source.

28. (Original) A seismic surveying arrangement as claimed in claim 27 wherein the predetermined time is substantially equal to the travel time of seismic energy from the first seismic source to the second seismic source.

29. (Original) A seismic surveying arrangement as claimed in claim 24 wherein the or each seismic source in the source array is disposed, in use, substantially at the surface of a water column.

30. (Original) A seismic surveying arrangement as claimed in claim 24 wherein the source array comprises means for absorbing upwardly-emitted seismic energy.

31. (Original) A seismic surveying arrangement as claimed in claim 24 wherein the source array comprises means for inducing positive reflection of upwardly-emitted seismic energy.

32. (Original) A storage medium comprising a program for a data processor of an apparatus as defined in claim 23.

33. (Original) A storage medium containing a program for controlling a data processor to perform a method as defined in claim 1.